

a step in which said workpiece is electrostatically held by applying a high level DC voltage to an electrostatic chuck provided at said mounting surface of said electrode;

a step in which plasma processing is performed on said workpiece under a reduced pressure atmosphere;

a step in which said electrode is moved from an upper plasma processing position to a lower delivery position after said plasma processing ends; and

a step of opening a means for opening/closing which switchably connects said delivery chamber to said plasma processing chamber for transfer of said workpiece from/to said plasma processing chamber during the moving operation of said electrode, wherein the pressure inside said delivery chamber is sustained at a higher pressure than the pressure inside said plasma processing chamber.

24. (New) A plasma processing method according to claim 23, wherein the pressure inside said delivery chamber and the pressure inside said plasma processing chamber are set roughly equal to each other before said electrode reaches the lower delivery position.

25. (New) A plasma processing method according to claim 23, wherein after the electrode completes its descent operation, the workpiece is lifted from the mounting surface of the electrode by a lifter pin.

26. (New) A plasma processing method according to claim 25, wherein at least a portion of the lifter pin which contacts the workpiece is electrically conductive.

27. (New) A plasma processing method according to claim 26, wherein said workpiece is a semiconductor wafer.

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28. (New) A plasma processing method, comprising:

a step in which a workpiece is placed at a mounting surface of an electrode provided inside a plasma processing chamber;

a step in which said workpiece is electrostatically held by applying a high level DC voltage to an electrostatic chuck provided at said mounting surface of said electrode;

a step in which plasma processing is performed on said workpiece under a reduced pressure atmosphere;

a step of opening a means for opening/closing which switchably connects said delivery chamber to said plasma processing chamber for transfer of said workpiece from/to said plasma processing chamber after the step of plasma processing, wherein the pressure inside said delivery chamber is sustained at a higher pressure than the pressure inside said plasma processing chamber; and

a step in which said electrode is moved from an upper plasma processing position to a lower delivery position after the means for opening/closing is opened.

29. (New) A plasma processing method according to claim 28, wherein the pressure inside said delivery chamber and the pressure inside said plasma processing chamber are set roughly equal to each other before said electrode is moved.

30. (New) A plasma processing method according to claim 28, wherein after the electrode completes its descent operation, the workpiece is lifted from the mounting surface of the electrode by a lifter pin.

31. (New) A plasma processing method according to claim 30, wherein at least a portion of the lifter pin which contacts the workpiece is electrically conductive.

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